



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,244	01/14/2002	Satoru Katagami	111373	9429
25944	7590	04/20/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			KOCH, GEORGE R	
			ART UNIT	PAPER NUMBER

1734

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/043,244

Applicant(s)

KATAGAMI ET AL.

Examiner

George R. Koch III

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 8-12, 15, 21, 22, 24 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 13, 14, 16-20, 23 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/9/03; 5/6/02; 6/13/03; 8/1/03; 11/12/03; 1/12/04; 2/24/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of group I, species A in the reply filed on 2/22/2005 is acknowledged. The traversal is on the ground(s) that there is no search burden. With respect to the group restriction requirement (i.e., between the method and the apparatus), this is not found persuasive because the apparatus does NOT have to perform the claimed method, such as the claimed inclination of the nozzle rows. The apparatus merely has to be capable of inclining the nozzle rows. Meanwhile, the process must perform the claimed steps, and for example, especially with claim 21, must create a color filter. The apparatus can be used to make any product with any coating material.

However, for this reason, the species restriction on the apparatus ALONE is lifted. The substrate and material used do not constitute element limitations in the current claims, and thus, any apparatus can use the two materials. Therefore the material used does not modify the apparatus, and similarly, the material used does not create a search burden. Therefore, the species restriction is lifted since the species are not elements of the apparatus.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1-7, 13, 14, 16-20, 23 and 25 are examined.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

Art Unit: 1734

unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-7, 13, 14, 16-20, 23 and 25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10, 12-16, 55-61 of copending Application No. 10/301,917. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims fully encompasses claims 1-7, 13, 14, 16-20, 23 and 25.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. Claims 1-7, 13, 14, 16-20, 23 and 25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 10/620,610 in view of Akihara (6,145,981) and Akihara '745 (EP 0832745 A2). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims fully encompasses claims 1-7, 13, 14, 16-20, 23 and 25. Akihara '981 provides support for moving the

nozzle above the head and Akihara '075 discloses the support for adjusting the nozzle pitch and distances). Both improve coating accuracy. Therefore, it would have been obvious to include these elements at the time of the invention in order to improve coating accuracy.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claims 1-7, 13, 14, 16-20, 23 and 25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8-10 of US 6,758,550 B2 in view of Akihara (6,145,981) and Akihara '745 (EP 0832745 A2).

As to claim 1, although the conflicting claims are not identical, they are not patentably distinct from each other because the claim 8 discloses the plurality of heads, the mechanism, and controlling the pitch. Claim 8 does not recite the supporting mechanism. However, both Akihara '745 and Akihara '981 provides support for a support mechanism. Such a structure enables the nozzles to be properly positioned over substrate and enables coating precision and accuracy. Therefore, it would have been obvious to include these elements at the time of the invention in order to improve coating accuracy.

As to claim 2, see claim 8 of the '550 patent.

As to claim 3, see claim 8 of the '550 patent.

As to claim 4, Akahira '745 and '981 are capable of disclosing the plurality of the heads having substantially a same nozzle pitch of the nozzle rows, and substantially a same inclination angle of the nozzle rows (see Figures). Such a configuration would result in consistent coating. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such an inclination angle in order to achieve consistent coating.

As to claim 5, see the rejection of claim 1 above.

As to claim 6, claim 8 of the '550 patent recites control of the spacing.

As to claim 7, claim 8 of the '550 patent recites control of the angle.

As to claims 13 and 14, these limitations provide no weight to the claimed apparatus, which is capable of using the recited materials.

As to claim 16, see the rejection of claim 1 above. The '550 patent further does not disclose a mechanism that supplies filter material. Akihira '981 discloses a mechanism that supplies a filter material to the heads (see column 19, line 48 to column 20, line 25, which discloses nozzle supply lines). Similarly, Akihira '745 discloses a mechanism that supplies a filter material to the heads (see Figure 3). One in the art would appreciate that these structures provide functionality by ensuring a ready supply of dispensing material. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such supply structures in order to ensure nozzle functionality by ensuring that the nozzle actually has a supply of material to dispense.

As to claim 19, 23, and 25, see claim the rejection 16 above.

As to claim 17, 18, and 20, see claim 8 of the '550 patent.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned patent 6,758,550, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Claims 1-7, 13, 14, 16-20, 23 and 25 are directed to an invention not patentably distinct from claims 8-10 of commonly assigned patent 6,758,550 as described above. Specifically, see the rejection under obvious double patenting above.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(f) he did not himself invent the subject matter sought to be patented.

(g)(1) during the course of an interference conducted under section 135 or section 291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

8. Claims 1-7, 13, 14, 16-20, 23, and 25 are rejected under 35 U.S.C. 102(f or g)/103(a) as being unpatentable over US Patent 6,758,550 in view of Akihara '745 and Akihara "981.

See the rejection over obvious double patenting based on the same references above.

9. Claims 1-5, 13, 14, and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Maramuto (6,290,352).

Marumoto discloses an apparatus for discharging a material to an object, comprising a plurality of heads each having a nozzle row (see Figure 1, 16 and 17, and see column 13, lines 60-67), the nozzle row having an arrangement of a plurality of nozzles (see Figures 16 and 17); a supporting mechanism (Figure 1, item 90a) that supports the plurality of heads; a mechanism that scans at least one of the object and the supporting mechanism relative to each other in a scanning direction (X-Y-theta stage 52), wherein the nozzle row is inclined relative to the scanning to the scanning direction (see Figures 16 and 17)

As to claim 2, Marumoto discloses that a plurality of the heads being supported obliquely (as shown in Figure 17) relative to a longitudinal direction of the supporting mechanism.

As to claim 3, Marumoto discloses and is capable at least one of the object and the supporting mechanism being scanned relative to the other in at least one of a main scanning direction and a sub-scanning direction crossing the main scanning direction (see angled scanning in Figure 12).

As to claim 4, Maramuto discloses the plurality of the heads having substantially a same nozzle pitch of the nozzle rows, and substantially a same inclination angle of the nozzle rows (see Figure 12).

As to claim 5, Marumoto as applied in claim 1 above discloses an apparatus for discharging a material to an object, comprising a plurality of heads (see Figure 1, 16 and 17) each having a nozzle row, the nozzle row having an arrangement of a plurality of nozzles; a supporting mechanism (item 90a) that supports the plurality of the heads,

a mechanism that scans at least one of the object and the supporting mechanism relative to each other (X-Y-theta table 52); and a mechanism (the pivot in support 90a) that controls an angle formed by at least one of the nozzle rows and the scanning direction.

As to claim 13, the material worked with does not added patentable weight. Marumoto is capable of and discloses dispensing a color filter material.

As to claim 14, the material worked with does not added patentable weight. Marumoto is capable of dispensing an EL luminescent material.

As to claim 16, Marumoto discloses an apparatus for producing a color filter, comprising: a plurality of heads each having a nozzle row (see Figures 1, 16, and 17), the nozzle row including an arrangement of a plurality of nozzles; a mechanism that supplies a filter material to the heads (see Figure 3 and column 5, line 66 to column 6, line 26); and a supporting mechanism that supports the plurality of the heads (item 90a), wherein the supporting mechanism supports the plurality of the heads in an inclined state (the pivot capability of the support - see column 5, lines 24-37).

As to claim 17, the support mechanism is capable of supporting the heads in a fixed state.

As to claim 18, the plurality of heads (i.e, the R, G, and B heads) has substantially the same nozzle pitch of the nozzle rows and substantially a same inclination angle of the nozzle rows.

Art Unit: 1734

10. Claims 1-7, 13, 14, 16-20, 23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Akahira (US 6,145,981)

Akahira discloses an apparatus for discharging a material to an object, comprising a plurality of heads each having a nozzle row (Figures 19-25, item 305, and especially Figure 22), the nozzle row having an arrangement of a plurality of nozzles (see Figure 22, items B1-B7, G1-G7, and R1-R7); a supporting mechanism (Figure 21, items 325-327) that supports (and move) the plurality of heads; a mechanism that scans at least one of the object and the supporting mechanism relative to each other in a scanning direction (see column 15-18 and Figure 22, arrow S), wherein the nozzle row is inclined relative to the scanning to the scanning direction (see Figure 22). Furthermore, Akahira discloses that the apparatus can be manufactures as a combination of a plurality of recording head to form the full line (see column 20, lines 26-33).

As to claim 2, Akahira discloses that a plurality of the heads being supported obliquely (as shown in Figure 22) relative to a longitudinal direction of the supporting mechanism.

As to claim 3, Akahira discloses and is capable at least one of the object and the supporting mechanism being scanned relative to the other in at least one of a main scanning direction and a sub-scanning direction crossing the main scanning direction (see angled scanning in Figure 22).

As to claim 4, Akahira is capable of disclosing the plurality of the heads having substantially a same nozzle pitch of the nozzle rows, and substantially a same inclination angle of the nozzle rows (see Figure 22).

As to claim 5, Akahira as applied in claim 1 above discloses an apparatus for discharging a material to an object, comprising a plurality of heads each having a nozzle row (see Figure 22), the nozzle row having an arrangement of a plurality of nozzles (see Figure 22); a supporting mechanism (bottom of items 325, 326, and 327) that supports the plurality of the heads, a mechanism that scans at least one of the object and the supporting mechanism relative to each other; and a mechanism (items 325, 326, 327) that controls an angle formed by at least one of the nozzle rows and the scanning direction.

As to claim 6, Akahira discloses a mechanism for controlling a spacing between the plurality of the nozzle rows (items 326, 326, and 327).

As to claim 7, Akahira discloses the mechanism (items 325, 326, and 327) that is capable of controlling the angle between at least one nozzle row and the scanning direction controlling the angle in such a manner that the plurality of the heads have substantially the same nozzle pitch of the nozzle rows and substantially the same inclination angle of the nozzle rows.

As to claim 13, the material worked with does not added patentable weight.
Akahira is capable of and discloses dispensing a color filter material.

As to claim 14, the material worked with does not added patentable weight.
Akahira is capable of dispensing an EL luminescent material.

As to claim 16, Akahira discloses an apparatus for producing a color filter, comprising: a plurality of heads each having a nozzle row (see Figure 21 and 22), the nozzle row including an arrangement of a plurality of nozzles (see Figure 22, items R1-7, G1-7, and B1-7); a mechanism that supplies a filter material to the heads (see column 19, line 48 to column 20, line 25, which discloses nozzle supply lines); and a supporting mechanism that supports the plurality of the heads (items 325, 326, and 327), wherein the supporting mechanism supports the plurality of the heads in an inclined state (see column 16, lines 13-19).

As to claim 17, the support mechanism is capable of supporting the heads in a fixed state.

As to claim 18, the plurality of heads (i.e, the R, G, and B heads) has substantially the same nozzle pitch of the nozzle rows and substantially a same inclination angle of the nozzle rows (as shown in Figure 22).

As to claim 19, Akahira discloses an apparatus for producing a color filter, comprising: a plurality of heads each having a nozzle row (Figure 21 and 22), the nozzle row including an arrangement of a plurality of nozzles (Figure 22, items R1-7, G1-7, and B1-7); a mechanism that supplies a filter material to the heads (see column 19, line 48 to column 20, line 25, which discloses nozzle supply lines); a supporting mechanism that supports the plurality of the heads (itmes 325, 326, and 327), a main scanning mechanism that moves the supporting mechanism by main scanning; a sub-scanning

Art Unit: 1734

mechanism that moves the supporting mechanism by sub-scanning (specifically, Akahira discloses moving the substrate, but also discloses that the setup can be reversed such that the substrate is stationary and the nozzle head scans - see column 19, lines 27-30); a nozzle row angle control mechanism that controls the inclination angles of the plurality of the nozzle rows (the theta component of items 325, 326, and 327); and a nozzle row spacing control mechanism that controls a spacing between the plurality of the nozzle rows (the y and z axis component of items 326 and 327).

As to claim 20, Akahira discloses that the plurality of heads (i.e., the R, G, and B heads) has substantially the same nozzle pitch of the nozzle rows and substantially a same inclination angle of the nozzle rows (see Figure 22).

As to claim 23, Akahira discloses an apparatus capable of and disclosed as being used for (column 1, line 18) manufacturing a liquid crystal device, comprising: a plurality of heads each having a nozzle row (Figure 21 and 22), the nozzle row including an arrangement of a plurality of nozzles (Figure 22, items R1-7, G1-7, and B1-7); a mechanism that supplies a filter material to the heads (see column 19, line 48 to column 20, line 25, which discloses nozzle supply structures); a supporting mechanism that supports the plurality of the heads (items 325, 326, and 327), a main scanning mechanism that moves the supporting mechanism by main scanning; and a sub-scanning mechanism that moves the supporting mechanism by sub-scanning (specifically, Akahira discloses moving the substrate, but also discloses that the setup can be reversed such that the substrate is stationary and the nozzle head scans - see

Art Unit: 1734

column 19, lines 27-30), wherein the supporting mechanism supports the plurality of the heads in an inclined state (as shown in Figure 22).

As to claim 25, Akahira (see citations above) discloses an apparatus capable of manufacturing an EL device, comprising a plurality of heads each having a nozzle row (Figure 21 and 22), the nozzle row having an arrangement of a plurality of nozzles; a mechanism that capable of supplying an EL luminescent material to the heads ; a supporting mechanism that supports the plurality of the heads, a main scanning mechanism that moves the supporting mechanism by main scanning; a sub-scanning mechanism that moves the supporting mechanism by sub-scanning; a nozzle row angle control mechanism that controls the inclination angles of the plurality of the nozzle rows; and a nozzle row distance control mechanism that controls a spacing between the plurality of the nozzle rows.

11. Claims 1-7, 13, 14, and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Akihara (EP 0832745 A2).

Akahira discloses an apparatus for discharging a material to an object, comprising a plurality of heads each having a nozzle row (Figures 16, items 204a-c), the nozzle row having an arrangement of a plurality of nozzles (see Figure 17, items 205); a supporting mechanism (Figure 21, items 214) that supports (and move) the plurality of heads; a mechanism that scans at least one of the object and the supporting mechanism relative to each other in a scanning direction (Figure 1, item 51, X-Y-theta

table), wherein the nozzle row is inclined relative to the scanning to the scanning direction (see Figure 16-17).

As to claim 2, Akahira discloses that a plurality of the heads being supported obliquely (as shown in Figure 16-17) relative to a longitudinal direction of the supporting mechanism.

As to claim 3, Akahira discloses and is capable at least one of the object and the supporting mechanism being scanned relative to the other in at least one of a main scanning direction and a sub-scanning direction crossing the main scanning direction (via items 51).

As to claim 4, Akahira is capable of discloses the plurality of the heads having substantially a same nozzle pitch of the nozzle rows, and substantially a same inclination angle of the nozzle rows (see Figure 17).

As to claim 5, Akahira as applied in claim 1 above discloses an apparatus for discharging a material to an object, comprising a plurality of heads each having a nozzle row (see Figure 16), the nozzle row having an arrangement of a plurality of nozzles (see Figure 17, item 205); a supporting mechanism (item 214) that supports the plurality of the heads, a mechanism that scans at least one of the object and the supporting mechanism relative to each other (item 51); and a mechanism (items item 214, 212a-c and 206a-c) that controls an angle formed by at least one of the nozzle rows and the scanning direction.

As to claim 6, Akahira discloses a mechanism for controlling a spacing between the plurality of the nozzle rows (the nozzles can be moved along items 214 - see columns 17-18).

As to claim 7, Akahira discloses the mechanism (items items item 214, 212a-c and 206a-c) that is capable of controlling the angle between at least one nozzle row and the scanning direction controlling the angle in such a manner that the plurality of the heads have substantially the same nozzle pitch of the nozzle rows and substantially the same inclination angle of the nozzle rows.

As to claim 13, the material worked with does not added patentable weight. Akahira is capable of and discloses dispensing a color filter material.

As to claim 14, the material worked with does not added patentable weight. Akahira is capable of dispensing an EL luminescent material.

As to claim 16, Akahira discloses an apparatus for producing a color filter, comprising: a plurality of heads each having a nozzle row (see Figure 1, 16 and 17), the nozzle row including an arrangement of a plurality of nozzles (see Figure 17, item 205); a mechanism that supplies a filter material to the heads (see Figure 3); and a supporting mechanism that supports the plurality of the heads (items 214 and 90a), wherein the supporting mechanism supports the plurality of the heads in an inclined state (see Figures 16 and 17).

As to claim 17, the support mechanism is capable of supporting the heads in a fixed state.

As to claim 18, the plurality of heads (i.e, the R, G, and B heads) has substantially the same nozzle pitch of the nozzle rows and substantially a same inclination angle of the nozzle rows (as shown in Figure 16 and 17).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 19-20, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akihara '745 (EP 0832745) as applied to claims 1-7, 13, 14, and 16-18 above, and further in view of Akihara '981 (US 6,145,981).

As to claim 19, Akahira '745 discloses an apparatus for producing a color filter, comprising: a plurality of heads each having a nozzle row (Figure 1, 16, and 17), the nozzle row including an arrangement of a plurality of nozzles (Figure 17, item 205); a mechanism that supplies a filter material to the heads (see Figure 3); a supporting

mechanism that supports the plurality of the heads (items 214 and 90a), a nozzle row angle control mechanism that controls the inclination angles of the plurality of the nozzle rows (items 214, 212a-c, and 206a-c); and a nozzle row spacing control mechanism that controls a spacing between the plurality of the nozzle rows (via the slide mechanisms - see columns 17-18).

Akihara '745 does not disclose scanning by moving the supporting member.

Akihara '745 scans by moving the substrate.

However, Akihara '981, which discloses the same scanning setup, also discloses that it can be substituted with a main scanning mechanism that moves the supporting mechanism by main scanning; a sub-scanning mechanism that moves the supporting mechanism by sub-scanning (specifically, Akahira '981 discloses moving the substrate, but also discloses that the setup can be reversed such that the substrate is stationary and the nozzle head scans - see column 19, lines 27-30). One in the art would appreciate that moving the nozzle, while complicating the ejection profile, would be useful when the substrate becomes too unwieldy to move due to increased floor space required. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have moved the nozzles for scanning purposes in order to coat larger substrates without the need to move the substrates, thus reducing apparatus space.

As to claim 20, Akahira '747 discloses that the plurality of heads (i.e, the R, G, and B heads) has substantially the same nozzle pitch of the nozzle rows and substantially a same inclination angle of the nozzle rows (see Figure 16 and 17).

As to claim 23, Akahira '745 discloses an apparatus capable of and disclosed as being used for (column 1, line 13) manufacturing a liquid crystal device, comprising: a plurality of heads each having a nozzle row (Figure 1, 16, and 17), the nozzle row including an arrangement of a plurality of nozzles (Figure 17, item 205); a mechanism that supplies a filter material to the heads (Figure 3 and the specification); a supporting mechanism that supports the plurality of the heads (items 90a and 214), wherein the supporting mechanism supports the plurality of the heads in an inclined state (as shown in Figure 16 and 17).

Akihara '745 does not disclose scanning by moving the supporting member.
Akihara '745 scans by moving the substrate.

However, Akihara '981, which discloses the same scanning setup, also discloses that it can be substituted with a main scanning mechanism that moves the supporting mechanism by main scanning; a sub-scanning mechanism that moves the supporting mechanism by sub-scanning (specifically, Akahira '981 discloses moving the substrate, but also discloses that the setup can be reversed such that the substrate is stationary and the nozzle head scans - see column 19, lines 27-30). One in the art would appreciate that moving the nozzle, while complicating the ejection profile, would be useful when the substrate becomes too unwieldy to move due to increased floor space required. Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to have moved the nozzles for scanning purposes in order to coat larger substrates without the need to move the substrates, thus reducing apparatus space.

As to claim 25, Akahira '745 (see citations above) discloses an apparatus capable of manufacturing an EL device, comprising a plurality of heads each having a nozzle row (Figures 1, 16, and 17), the nozzle row having an arrangement of a plurality of nozzles; a mechanism that capable of supplying an EL luminescent material to the heads ; a supporting mechanism that supports the plurality of the heads (items 90a and 214), a nozzle row angle control mechanism that controls the inclination angles of the plurality of the nozzle rows (item 214, 212a-c, and 206a-c); and a nozzle row distance control mechanism that controls a spacing between the plurality of the nozzle rows (via the slide mechanism 214, see columns 17-18).

Akihara '745 does not disclose scanning by moving the supporting member.
Akihara '745 scans by moving the substrate.

However, Akihara '981, which discloses the same scanning setup, also discloses that it can be substituted with a main scanning mechanism that moves the supporting mechanism by main scanning; a sub-scanning mechanism that moves the supporting mechanism by sub-scanning (specifically, Akahira '981 discloses moving the substrate, but also discloses that the setup can be reversed such that the substrate is stationary and the nozzle head scans - see column 19, lines 27-30). One in the art would appreciate that moving the nozzle, while complicating the ejection profile, would be

useful when the substrate becomes too unwieldy to move due to increased floor space required. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have moved the nozzles for scanning purposes in order to coat larger substrates without the need to move the substrates, thus reducing apparatus space.

15. Claims 1-7, 13, 14, 16-20, 23, and 25 are rejected under 35 U.S.C. 103(a) as being obvious over Ito (US 6,758,550) in view of Akihara '745 and Akihara '981.

See the rejections based on the same references in the double patenting section above.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29,

Art Unit: 1734

1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


George R. Koch III
Patent Examiner
Art Unit 1734

GRK
04/17/2005